

09/939484
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Amendments to the Claims

Claims 1-8 (canceled)

9. (currently amended) An isolated and purified protein of SEQ ID No: 4, or a
^{WD}
functionally equivalent derivative having at least 85% identity to SEQ ID No: 4, and said ^{WD}
functionally equivalent derivative having a potassium (K⁺) permeable membrane channel
comprising more than one P domain and three, four, five or more than six transmembrane
segments.
^{2 P domains & 3 or 4 transmembrane segments}

10. (original) The protein of claim 9 wherein the number of P domains is two and the number of transmembrane segments is four.

11. (currently amended) The protein of claim 10 in which the potassium ~~transport~~
permeable channel exhibits outward rectification when the extracellular concentration of potassium is 2mM and no rectification when the extracellular potassium is 98mM, thereby evidencing lack of intrinsic voltage sensitivity. ^{6x}

12. (original) The protein of claim 10 in which the potassium transport channel lacks intrinsic voltage, lacks kinetics voltage-and time sensitivities, thereby evidencing characteristics of background conductance.

13. (original) The protein of claim 9 in which the activity of the potassium transport channel is regulated by extracellular pH in a physiological range of 6.5 and 7.8.

14. (original) The protein of claim 13 which the potassium channel exhibits 10% transport activity at pH 6.7, and 90% transport activity at pH 7.7.

15. (original) The protein of claim 14 which is human.

Claims 16-23 (canceled)

40 genes for K^+ channels subunits

~~non-forming~~
~~shaker~~
~~IRK~~

non-forming
Shaker IRK

aux
Kv β Kv $\alpha\beta$ SUR Isk

Shaker 6 TMS w/ hydrophobic core

association w/ Shaker w/ aux \Rightarrow voltage-dependent K^+ +
 Ca^{++} dependent K^+ channels

IRK \Rightarrow Inward Rectifier K^+ channels

2 TMS

Both share P domain

TASK \rightarrow utility (pg 3) screen drugs for modulator agent
& treat / prevent diseases associated w/
channel - pg 27

\rightarrow related to TWIK-1 + TREK-1 (pg 16)

\rightarrow has 4 TMS (M1-M4) + 2 P domains (P1 + P2)
(-- pg 17)

\rightarrow mRNA detection in human tissue + mouse

\rightarrow physical properties performed in oocytes (pg 19)

\rightarrow " K^+ " selective hole (pg 24) 1.5^7 background
mammalian K^+ channel